

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for producing a structured composite material for accommodating passage of fluids through the structured composite material, the method comprising the steps of:

forming a first layer having a first shrinkage extent, the first layer comprising a nonwoven web;

forming a second layer having a second shrinkage extent different from the first shrinkage extent, the second layer comprising a film;

bonding the second layer to the first layer to form a composite material;
and

shrinking at least one of the first layer and the second layer to produce the structured composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores smaller than the fiber loop pores.

2. (Original) The method of claim 1, wherein the first layer comprises a propylene polymer and the second layer comprises an ethylene-propylene copolymer.

3. (Original) The method of claim 2, wherein during the shrinkage step, the second layer shrinks relative to the first layer.

4. (Original) The method of claim 1, further comprising the step of heating the composite material to affect shrinkage of at least one of the first layer and the second layer.

5. (Currently Amended) A method for producing a structured composite material for accommodating passage of fluids through the structured composite material, the method comprising the steps of:

forming a first layer having a first shrinkage extent;

forming a second layer having a second shrinkage extent different from the first shrinkage extent, the second layer comprising a film;

bonding the second layer to the first layer to form a composite material;

creping the composite material; and

shrinking at least one of the first layer and the second layer to produce the structured composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores smaller than the fiber loop pores.

6. (Currently Amended) A method for producing a structured composite material for accommodating passage of fluids through the structured composite material, the method comprising the steps of:

forming a first layer having a first shrinkage extent;

forming a second layer having a second shrinkage extent different from the first shrinkage extent;

creping the first layer;

stabilizing the creped first layer by bonding the second layer to the first layer; and

shrinking at least one of the first layer and the second layer to produce the structured composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores

smaller than the fiber loop pores.

7. (Original) The method of claim 1, wherein the second layer is bonded to the first layer by one of thermal bonding, pin bonding and differential speed bonding.

8. (Original) The method of claim 1, further comprising the step of stretching the second layer before the second layer is bonded to the first layer.

9. (Original) The method of claim 8, wherein the second layer is stretched in a machine direction to about 1.5 to about 6.0 times an initial length.

10. (Original) The method of claim 8, wherein the second layer is stretched in a machine direction to about 2.0 to about 4.0 times an initial length.

Claims 11-23. (Canceled)

24. (Currently Amended) A method for producing a composite material having a structure for accommodating passage of fluids through the composite material, the method comprising the steps of:

forming a first layer having a first shrinkage extent, the first layer comprising a nonwoven web;

applying a second layer to the first layer to form the composite material, the second layer comprising a film and having a second shrinkage extent different from the first shrinkage extent; and

heating the composite material to produce the structure, wherein at least one of the first layer and the second layer shrinks, the composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores smaller than the fiber loop pores.

25. (Original) The method of claim 24, wherein the first layer shrinks relative to the second layer.

26. (Original) The method of claim 24, wherein the second layer shrinks relative to the first layer.

27. (Currently Amended) A method for producing a composite material having a structure for accommodating passage of fluids through the composite material, the method comprising the steps of:

forming a first layer having a first shrinkage extent;

creping the first layer;

applying a second layer to the first layer to form the composite material, the second layer having a second shrinkage extent different from the first shrinkage extent and comprising a film; and

heating the composite material to produce the structure, wherein at least one of the first layer and the second layer shrinks, the composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores smaller than the fiber loop pores.

28. (Original) The method of claim 24, further comprising the step of stretching the second layer before the second layer is applied to the first layer.

29. (Original) The method of claim 24, further comprising the step of pattern embossing the first layer to form thermal bonds which extend through

the first layer.

30. (Withdrawn) A structured material, comprising:
a first component having a first shrinkage extent;
a second component combined with the first component to form a material, the second component having a second shrinkage extent different from the first shrinkage extent, wherein at least one of the first component and the second component is shrinkable to form the structured material.

31. (Withdrawn) The structured material of claim 30, wherein the first component forms a first layer, the second component forms a second layer, and the second layer is bonded to the first layer.

32. (Withdrawn) The structured material of claim 30, wherein the first component comprises a nonwoven web.

33. (Withdrawn) The structured material of claim 30, wherein the second component comprises a film.

34. (Withdrawn) The structured material of claim 30, wherein the second layer has a shrinkage extent greater than the first layer.

35. (Withdrawn) The structured material of claim 30, wherein the first component and the second component form a heterogeneous structured material.

36. (Withdrawn) The structured material of claim 30, wherein the first component comprises a polyethylene copolymer and the second component comprises a polypropylene polymer.

37. (Withdrawn) The structured material of claim 36, wherein the first component is shrinkable relative to the second component.

38. (Withdrawn) The structured material of claim 30, wherein the first component forms a scrim material and the second component forms a plurality of fibers, the plurality of fibers spun into the scrim material.

39. (Withdrawn) The structured material of claim 38, wherein the scrim material shrinks relative to the plurality of fibers.

Serial No.: 09/871,118
Amendment dated 20 August 2004
Reply to Office Action mailed 20 May 2004

Docket No.: KCC-14,859

40. (Withdrawn) The structured material of Claim 30, comprising a personal care absorbent product.

41. (Withdrawn) The structured material of Claim 30, comprising one of a spacer layer, a fastener, a filter medium, an air filter, a liquid filter, a facemask, and a wipe.